AVSI
AEROSPACE VEHICLE SYSTEMS INSTITUTE

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Expanding Flexible Use in Mid Band Spectrum Between 3.7 and 24 GHz	)	GN Docket No. 17-183
	)	

To: The Commission

COMMENTS OF
THE AEROSPACE VEHICLE SYSTEMS INSTITUTE

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The Aerospace Vehicle Systems Institute (AVSI) has been working with its industry partners to develop technical characteristics and performance standards for wireless avionics intra-communications (WAIC) operating within the 4200 – 4400 MHz frequency band. This band is shared with radio altimeters and both are considered safety services operating within the Aeronautical (Route) Navigation Service. As a result, the AVSI team is deeply familiar with interference susceptibility of both WAIC and radio altimeters. The proposed introduction of new services into the 3700 – 4200 MHz frequency band raises potential concerns about unwanted interference towards both radio altimeters and WAIC. For this reason, AVSI offers the following comments in response to the Commission's Notice of Inquiry.

3700 - 4200 MHz

The frequency range of 3700 – 4200 MHz directly abuts the 4200 – 4400 MHz international frequency allocation for aircraft radio altimeters, as is confirmed in 47 CFR Part 2.106. Radio altimetry is a primary service in this band providing safety critical sensor data to support manual and automatic landing of aircraft in limited visibility conditions.

A typical FM CW radio altimeter receiver requires a sensitivity of -135 to -137 dBm to reliably produce a valid distance measurement at 5,000 feet. Thus considerable care must be taken not to interfere with the operation of radio altimeters.

The current allocation of 3700 – 4200 MHz is for non-GSO FSS space to earth television/radio communications. Non-GSO FSS communications are deterministic and well understood, and have an established record of coexistence with radio altimeter operation in their respective frequency bands.

Use of the 3700 – 4200 MHz band for IMT was requested at the 2015 WRC and was denied due to concerns over interference with radio altimeters voiced by ITU-R Working Party 4C (WP4C). ITU-R WP5A additionally studied this issue in advance of 2015 WRC, with the result that it was determined that the interference characteristics of International Mobile Telecommunications (IMT) use of adjacent bands cannot be adequately predicted to ensure continued safe operation of the radio altimeters.

2015 WRC also approved WAIC as a co- primary service in the 4200 – 4400 MHz band for use by aircraft systems associated with aircraft safety and regularity of flight in non-interfering co-existence with radio altimeters.

Industry teams are working in cooperation through AVSI, RTCA, Inc. and the International Civil Aviation Organization (ICAO) to develop WAIC systems. Considerable effort is being expended to ensure that WAIC systems can safely coexist with radio altimeters within and between military and commercial aircraft.

The interference characteristics of IMT are nondeterministic in application and the potential adjacent frequency band interference with WAIC has not been characterized.

We recommend that FCC proceed with caution to avoid potential interference to existing radio altimeter operation and emerging WAIC operations from IMT operation in frequency bands adjacent to the 4200 – 4400 MHz frequency band.

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